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Current Economic Analysis I-20

Industrial Fishery Products

Market Review and Outlook

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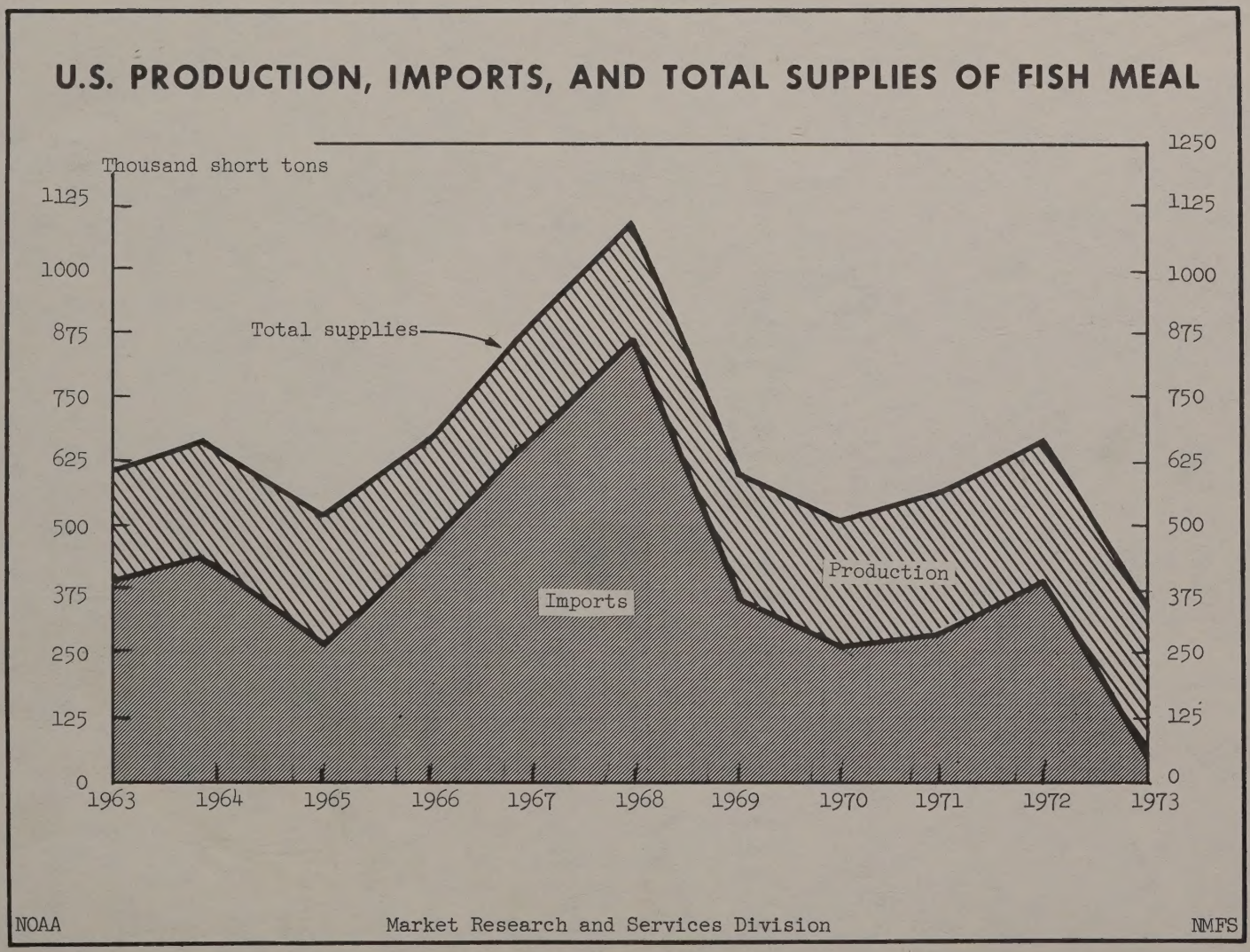
U.S. PRODUCTION, IMPORTS, AND TOTAL SUPPLIES OF FISH MEAL
Thousand short tons
1125
1000
875
750
625
500
375
250
125
0
1250
1125
1000
875
750
625
500
375
250
125
0
Total supplies
Production
Imports
1963
1964
1965
1966
1967
1968
1969
1970
1971
1972
1973
NOAA
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Figure 1

INDUSTRIAL FISHERY PRODUCTS MARKET REVIEW AND OUTLOOK

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SUMMARY

FISH MEAL

Supplies of fish meal in the United States--and the rest of the world--extremely tight. United States production of meal slightly higher in 1973 than in 1972, but imports 83 percent below 1972, owing to continued shutdown of Peruvian production. Stimulated by attractive foreign prices, exports of U.S. fish meal doubled in 1973.

World production of fish meal during January-October 1973 down 21 percent from a year earlier. Peru failed to reopen fishery in October. FEO[1/] countries during period exported only 39 percent of the amount shipped in the prior year. FEO stocks above a year ago at the beginning of November.

Prices of domestic fish meal at high levels even in face of price decline in soybean meal. No quotations for Peruvian meal during the last part of the year, because supplies exhausted.

Outlook fair for possible improvement in supply situation. Market slightly bearish mainly because of abundant supplies of soybean meal. Fish meal imports continuously low at least for the first half of 1974.

FISH SOLUBLES

Supplies of fish solubles in 1973 10 percent above a year before. Increase in domestic production due to higher output of solubles from fish other than menhaden. Outlook for the first half of 1974 is for continuing high demand and increased domestic production.

FISH OIL

Production of fish oil in 1973 up 20 percent from 1972. Increase attributed mainly to high production of menhaden oil. Industrial use of fish oil down because of high exports. Exports of fish oil close to record of 1963. Foreign prices for fish oil attractive. Domestic price ceilings in effect. Outlook for U.S. fish oil for the first half of 1974: increasing competition with substitute oils in the world market. Domestic production higher than a year ago.

1/ Fishmeal Exporters Organization: member countries are Angola, Chile, Iceland, Norway, Peru, and South Africa.

FISH MEAL

REVIEW

Supplies

Supplies of fish meal available in the United States during 1973 totaled 346,100 tons[2/], which was only about half of the quantity available in 1972. There was a slight improvement in domestic production in 1973, but imports were seriously depressed by the continuing crisis of the Peruvian anchoveta fishery (table 1).

Table 1.--Supplies, production, and imports of fish meal in the United States, by month, 1971-73 1/

Month	Supplies			Production			Imports		
	1971	1972	1973 2/	1971	1972	1973 2/	1971	1972	1973 2/
	Thousand short tons								
January	38.0	24.6	10.5	4.6	6.3	3.2	33.3	18.3	7.3
February	19.3	52.9	5.9	3.5	4.7	4.2	15.8	48.1	1.6
March	17.6	51.1	5.1	4.4	5.5	4.6	13.3	45.6	0.4
April	45.6	36.8	17.2	13.8	12.9	10.9	31.8	23.9	6.3
May	40.8	96.2	26.8	30.2	37.0	24.0	10.5	59.2	2.4
June	88.4	90.1	43.4	58.1	38.6	38.3	30.2	51.4	5.2
July	57.5	101.9	68.3	51.7	42.5	56.8	5.8	59.4	11.5
August	65.6	67.6	73.0	51.0	52.4	52.1	14.7	15.3	20.9
September	91.3	47.4	41.9	28.4	29.6	36.6	62.9	17.8	5.3
October	56.1	71.1	24.8	19.0	24.9	19.9	37.1	46.2	5.0
November	17.8	15.9	15.7	13.3	13.6	14.3	4.5	2.3	1.4
December	28.1	10.5	13.0	4.8	6.1	13.0	23.3	4.5	-
Total 3/	566.1	666.1	346.1	282.9	274.1	273.8	283.2	392.0	67.3

1/ Excludes meal made from shellfish.
2/ Preliminary.
3/ Figures may not add to total because of rounding.

2/ In general, domestic figures are expressed in short tons and foreign figures in metric tons. Short tons are used in this report unless otherwise specified. To convert mectric tons to short tons; multiply by 1.1023.

Table 2.--U.S. fish meal production by raw material source, 1971, 1972 and 1973

Time period	Source			Total 1/
	Menhaden	Tuna Mackerel and anchovy	Unclassified	
	Thousand short tons			
1971				
January-September	199.6	25.6	20.6	245.8
October	12.6	3.7	2.6	19.0
November	7.7	4.8	0.8	13.3
December	1.1	2.9	.9	4.8
Total 1/	221.0	37.0	24.9	282.9
1972 (Revised)				
January-September	168.6	39.2	21.7	229.5
October	16.3	6.0	2.7	25.0
November	7.2	5.3	1.1	13.6
December	1.5	3.8	.8	6.1
Total 1/	193.6	54.4	26.3	274.1
1973 2/				
January-September	164.3	43.6	23.6	231.5
October	10.1	7.4	2.4	19.9
November	5.9	7.4	1.1	14.4
December	3.2	8.1	1.7	13.0
Total 1/	183.5	66.5	28.8	278.8

1/ Figures may not add to total because of rounding
2/ Preliminary

U.S. Production

The domestic industry produced about 278,800 tons of fish meal in 1973, compared with 274,100 tons in 1972. The slight gain was due to higher production of tuna and mackerel meal, anchovy meal, and meal in the unclassified category (table 2). The last includes meal made from herring, thread herring, and groundfish. Menhaden meal production was moderately below a year earlier--183,500 tons in 1973, compared with 193,600 in 1972.

Menhaden landings in 1973 were lower both in the Gulf and Atlantic Coast areas. About 60 percent of the total 1973 catch of menhaden was landed in the Gulf Coast. The Atlantic Coast was responsible for the major share of the decline despite greater fishing effort in that area (table 3). Gulf Coast catches also were lighter than a year earlier, but the drop was proportionately less than in the Atlantic. Fewer vessels fished in the Gulf

area in 1973 than the year before, and the season was shorter--beginning later and ending earlier.

Table 3.--Menhaden landings by area

Area	1972	1973	Percentage change
	----Million lb------		--- Percent---
Atlantic Coast	766.2	699.6	-8.7
Gulf Coast	1,104.6	1,068.4	-3.3
Total 1/	1,870.9	1,768.0	-5.5

1/ Figures may not add to total because of rounding.

U.S. Imports

The United States in 1973 was able to import only 67,300 tons of fish meal from all sources compared with 392,000 tons in 1972. The low imports from Peru were the major reason for the decline. Also imports of fish meal from Canada declined, and there were no imports from Norway during the year (table 4 and fig. 2).

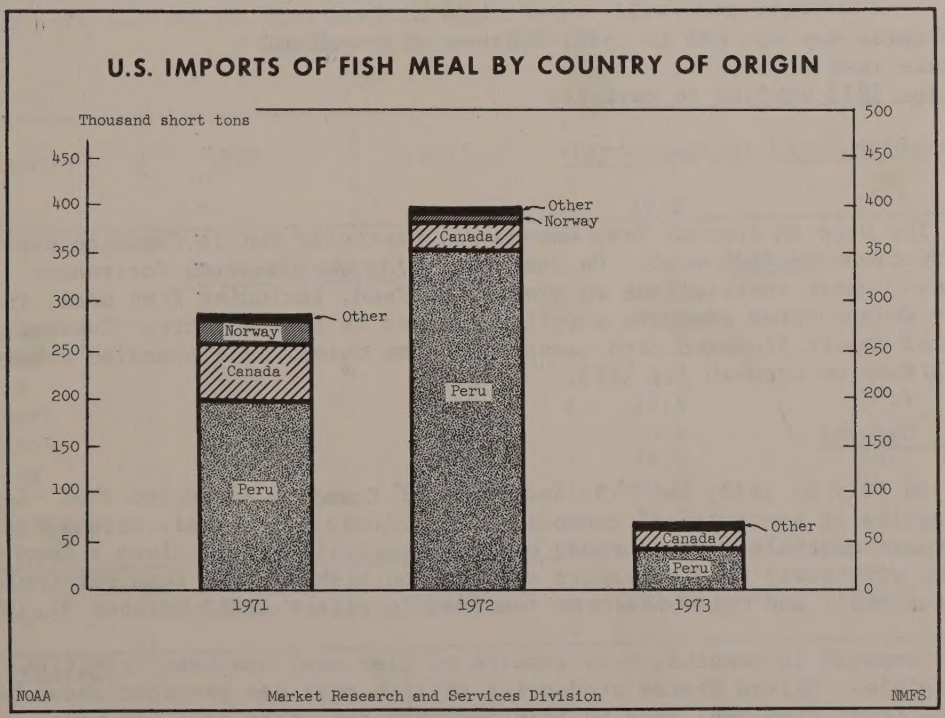

Figure 2

Table 4.--U.S. imports of fish meal by country of origin, 1972-73

Time period	Country of origin				Total 1/
	Canada	Peru	Norway	Other	
	Thousand short tons				
1972					
January-September	20.7	306.4	10.5	1.6	339.2
October	3.7	42.5	-	-	46.2
November	2.2	-	-	.1	2.3
December	1.0	3.4	2/	-	4.4
Total	27.6	352.3	10.5	1.7	392.0
1973					
January-September	17.2	41.8	-	1.9	60.9
October	4.7	-	-	.2	4.9
November	1.4	-	-	-	1.4
December	-	-	-	-	-
Total	23.3	41.8	0	2.1	67.3

1/ Figures may not add to total because of rounding.
2/ Less than 0.05.
Data for 1973 subject to revision

The drop in imports from Canada was partially due to Canadian export restrictions on fish meal. On June 29, 1973, the Canadian Government imposed export restrictions on grains and feed, including fish meal, in order to guarantee adequate supplies of feed in that country. However, special export licenses were granted in some cases. The Canadian embargo was lifted on October 31, 1973.

U.S. Exports

On July 5, 1973, the U.S. Secretary of Commerce announced that 41 categories of agricultural commodities, including fish meal, were subject to export controls. The purpose of these controls was to close a loophole in the previously imposed export controls on high-protein feed, particularly soybean meal, and these measures remained in effect until October 31, 1973.

Compared to imports, U.S. exports of fish meal has been traditionally negligible. United States production of fish meal has provided about half of the total fish meal used in this country; the other half has been imported, mainly from Peru. The export restrictions on soybeans and soybean

meal, shortages of Peruvian fish meal, and the price ceiling for fish meal in the United States created a situation in which foreign countries were offering higher prices for fish meal than the United States market. Despite periods of export controls in 1973, exports of fish meal reached 25,000 tons compared with 10,000 tons in 1972.

World Production of Fish Meal

The Peruvian anchovy crisis continued to aggravate the world fish meal supply situation during 1973. Production of fish meal in eight major exporting countries was an estimated 1.4 million metric tons in January - October 1973 compared with 2.0 million tons a year before (table 5). Peru's production of fish meal in January - October 1973 was estimated at 390,000 metric tons--less than half the production a year before and only 27 percent of the January - October 1971 production. Nearly all the meal was produced during trial fishing in March and April. On April 27 the anchovy fishing was suspended for an indefinite period. Expectations that the fishery would be opened in October did not materialize.

Production of fish meal dropped also in other countries except Iceland and South Africa, resulting in a 4-percent decline in the production of major exporting countries other than Peru. Canadian production of fish meal in January - October 1973 was 40,000 metric tons--about 40 percent less than the year before.

Table 5.--Production of fish meal in eight major exporting countries, January-October, 1972-73

Country	1972	1973	Percentage of total production	
			1972	1973
	- Thousand metric tons -		- - - - Percent - - - -	
Angola	102	82	5.2	5.6
Canada	57	40	2.9	2.8
Chile	65	45	3.3	3.1
Denmark	203	180	10.4	12.4
Iceland	71	95	3.6	6.6
Norway	369	353	18.9	24.4
Peru	853	1/390	43.7	26.9
South Africa	236	263	12.0	18.2
Total	1,956	1,448	100.0	100.0

1/ Estimated.

FEO Exports

The decline in the world production of fish meal led to a sharp drop in Fishmeal Exporters Organization (FEO) exports. The FEO member countries exported an estimated 907,000 metric tons of fish meal in January - October 1973--only 41 percent of the quantity exported a year before (table 6). The drop in exports was mainly due to smaller exports from Peru. Although Peru was still the leading exporter in the world, it exported only about 350,000 tons of fish meal in January - October 1973--less than one-fourth of its exports a year before.

Lack of production led the Peruvian Government on November 8, 1973, to ban all fish meal and oil exports and to cancel all existing sales contracts. The only exception to this ruling was that the Peruvian fish meal sales organization (EPCHAP) was given a special authorization to deliver fish meal to vessels that were already chartered for shipments before the end of November. The cancellations included nearly 1 million metric tons of fish meal.

The largest share of the total FEO exports in January - October, about 20 percent, went to West Germany. The actual quantity was, however, less than half the amount received a year before. The U.S. share dropped from 15 percent in January - October 1972 to 3 percent during the same period in 1973 (table 7).

East European countries received a larger share than a year before, although FEO exports to these countries were only 40 percent of a year before. Increased exports from Norway and Iceland to the socialist countries partially compensated for the drop of Peruvian shipments.

Table 6.--Exports of fish meal from FEO 1/ countries, January-October, 1972-73

Country	1972	1973	Percentage of total exports: 1972	Percentage of total exports: 1973
	--Thousand metric tons---		----------Percent----------	
Angola	100	76	4.5	8.4
Chile	78	26	3.5	2.9
Iceland	68	86	3.1	9.5
Norway	325	287	14.7	31.6
Peru	1,523	2/ 350	69.1	38.6
South Africa	111	82	5.1	9.0
Total	2,205	907	100.0	100.0

1/ Fishmeal Exporters Organization

2/ Estimated

Table 7.--Percentage share of FEO 1/ exports of fish meal, by country of destination, January-October, 1972-73

Country	Percentage of total FEO Exports	
	1972	1973 7/
	Percent	
EEC		
France	2.3	2.1
Germany, West	16.7	19.9
Italy	4.5	3.2
Netherlands/Belgum	8.6	6.8
Total	32.1	32.0
United States 2/	14.7	2.7
East European Countries 3/	16.1	19.2
Scandinavian Countries 4/	3.9	9.7
Latin American Countries 5/	6.3	3.5
Far East 6/	3.5	6.2
Spain	.6	1.7
United Kingdom and Eire	7.7	16.2
China	3.8	1.1
Other	11.3	7.7
Total	100.0	100.0

1/ Fishmeal Exporters Organization
2/ Based on export figures reported by FEO countries.
3/ Bulgaria, Czechoslovakia, East Germany, Hungary, Poland, Romania, and Yugoslavia.
4/ Denmark, Finland, and Sweden
5/ Argentina, Bolivia, Brazil, Columbia, Cuba, Mexico, and Venezuela.
6/ Including Japan
7/ Exports from Peru only for January-August 1973

Source: Fishmeal Exporters Organization.

FEO Stocks of Fish Meal

FEO countries held about 320,000 tons of fish meal on November 1, 1973, compared with 261,000 tons a year before (table 8). The stocks at the beginning of 1973 were only 185,000 tons, but increased during the year. FEO stocks on August 1 were 362,000 tons (fig. 3). Peru held 158,000 tons or about 44 percent of FEO stocks on August 1, 1973. Since then there has been very little commercial production of fish meal in Peru, and inventories have been further depleted up to the end of November.

Table 8.--FEO 1/ fish meal stocks held November 1, 1971, 1972, and 1973

Country	1971	1972	1973	Percentage of FEO total stocks		
				1968-72 average	1972	1973
	Thousand metric tons			Percent		
Angola	8	17	20	0.7	6.5	6.3
Chile	36	6	9	3.2	2.3	2.8
Iceland	8	3	6	0.7	1.1	1.9
Norway	196	143	129	17.9	54.8	40.3
Peru	767	36	2/ 100	70.0	13.8	31.2
S. Africa	83	56	56	7.5	21.5	17.5
Total	1,096	261	320	100.0	100.0	100.0

1/ Fishmeal Exporters Organization
2/ Estimated.

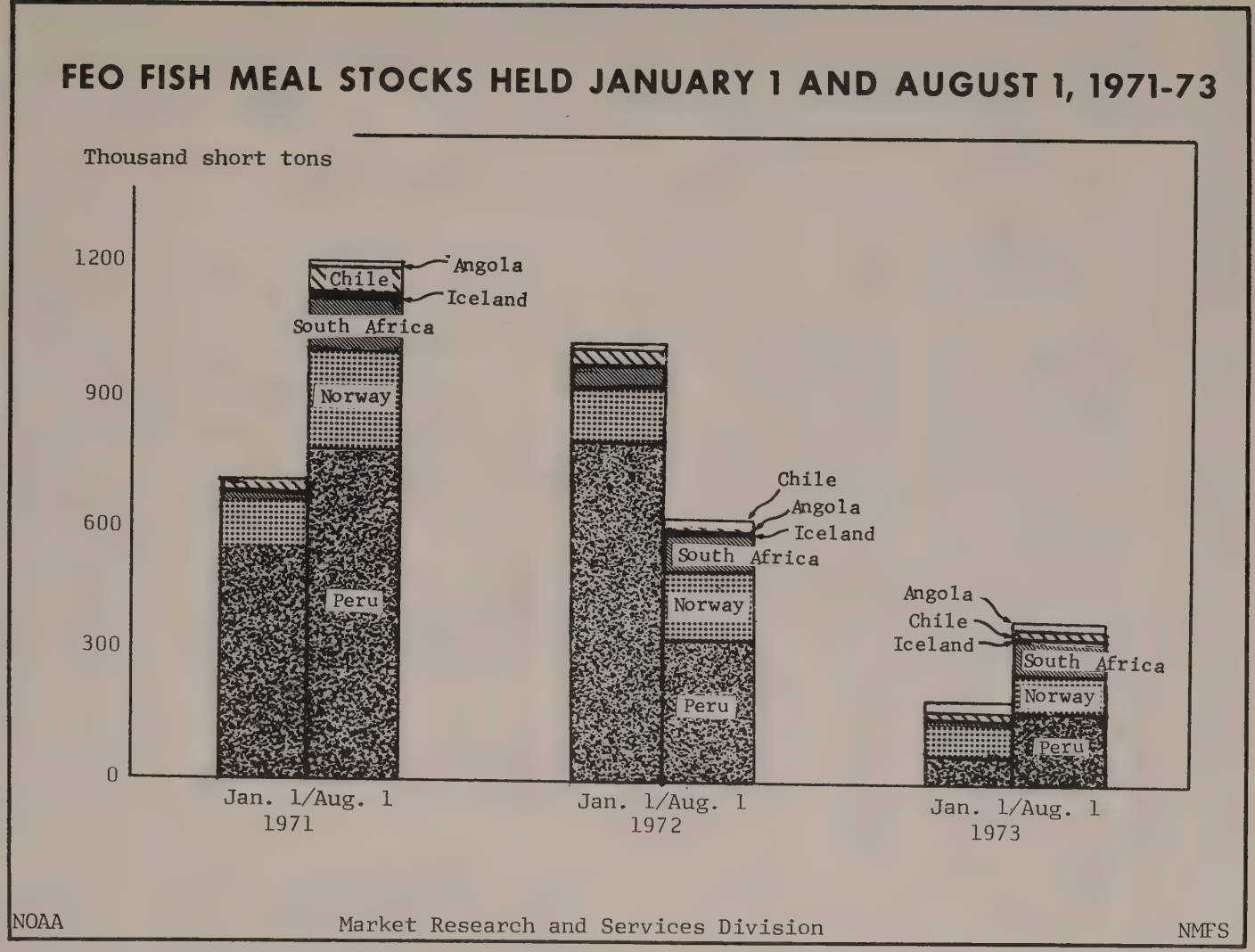
FEO FISH MEAL STOCKS HELD JANUARY 1 AND AUGUST 1, 1971-73
Thousand short tons
1200
900
600
300
0
Chile
Angola
Iceland
South Africa
Norway
Peru
Jan. 1/Aug. 1
1971
Jan. 1/Aug. 1
1972
Jan. 1/Aug. 1
1973
NOAA
Market Research and Services Division
NMFS

Figure 3

Broiler Placements

Inability of the broiler growers to pass on high feed costs, because of the price freeze, slowed the broiler business and was the major reason that the broiler placements were lower in 1973 than in 1972. About 3 billion broiler chicks were placed on farms in 1973 (table 9). These placements were about 4.5 percent lower than in 1972 and also slightly

Table 9. --Broiler chick placements in 22 States, and average broiler price at the farm, by month, 1971-73

Month	1971		1972 1/		1973	
	Chicks placed 2/	Broiler price	Chicks placed 2/	Broiler price	Chicks placed 2/	Broiler price
	Million	Cents/lb.	Million	Cents/lb.	Million	Cents/lb.
January	250.4	13.0	260.5	13.4	255.3	17.2
February	226.2	13.9	256.4	14.6	230.0	19.4
March	263.8	13.6	282.2	14.5	276.4	23.3
April	263.8	13.6	277.8	13.1	207.9	25.5
May	271.4	14.6	285.0	13.6	251.8	23.8
June	263.0	15.1	271.7	14.3	320.1	24.5
July	254.4	15.6	259.8	15.7	196.7	26.4
August	254.8	14.3	260.2	14.6	255.0	37.8
September	227.0	14.0	229.6	15.5	238.0	30.8
October	225.9	12.9	237.3	14.6	239.6	24.3
November	238.0	12.5	239.9	13.8	240.1	
December	252.6	12.1	249.7	14.0	289.0	
Total placements and average price	2,991.2	13.8	3,110.2	14.3	2,969.9	

1/ Preliminary.
2/ Weekly broiler chick placements prorated between months.
Note: Figures may not add to total because of rounding.

Sources: Delmarva Broiler Chick Report, U.S. Department of Agriculture, Statistical Reporting Service, and Poultry and Egg Situation, U.S. Department of Agriculture, Economic Research Service.

lower than the placements in 1971. Broiler chick placements gained after the price freeze was lifted on July 19, and feed costs declined.

Prices paid for broilers at the farm increased from an average of 17.2 cents per pound in January to 37.8 cents per pound in August, the highest average monthly price recorded. The comparable price a year earlier was 14.6 cents per pound. Prices of broilers declined somewhat in the fall in response to lower feed prices.

Soybean Meal Prices

Prices of soybean meal increased to all-time high levels during the first 10 months in 1973. The monthly average price for 50 percent soybean meal at Decatur, Ill., was $450 per ton in June--more than four times higher than a year before and more than twice the January 1973 average price (table 10). Speculation about the availability of supplies and high world demand caused the sharp price increases.

Expectations of a sizeable increase in U.S. soybean crop for 1973-74 season relieved some price pressures on soybeans in the fall of 1973.

Table 10.--Average monthly price of soybean meal 1/ at Decatur, Ill., 1971-73

Month	1971	1972	1973
	Dollars per short ton		
January	86.10	89.40	210.40
February	82.40	91.50	240.00
March	82.00	98.60	224.90
April	80.50	101.80	228.40
May	84.80	103.30	346.60
June	87.60	104.90	450.00
July	90.00	111.60	346.00
August	84.20	111.00	316.25
September	80.00	117.90	231.90
October	80.80	118.60	175.60
November	79.20	133.00	179.00
December	88.50	195.00	223.00
Average 2/	83.90	115.70	231.90

1/ 50 percent protein, bulk.
2/ Average weighted by monthly production of soybean meal and cake.

Source: Feed Market News, U.S. Department of Agriculture, Consumer and Marketing Service, Grain Division.

The average monthly price declined steadily after June, reaching $155 per ton at the end of October. However, news of possible fuel shortages that might hamper bean crushing caused prices to increase. The Decatur price for 50 percent soybean meal increased to an average of $223 per ton in December. The annual average price of soybean meal was $231.90 per ton in 1973, double the 1972 price.

The decreased price of soybean meal has rapidly reduced the relative price advantage that fish meal had during the summer. The ratio of the price of menhaden meal has increased steadily since June.

Ratio of menhaden meal price to soybean meal price		Price per unit of protein in dollars	
		Menhaden meal	Soybean meal
June	1.13:1	8.47	9.00
July	1.44:1	8.29	6.90
August	1.50:1	7.90	6.33
September	1.96:1	7.61	4.64
October	2.42:1	7.08	3.51
November	2.43:1	7.27	3.58
December	2.41:1	8.96	4.46

In the past, the trend of fish meal prices appears to have been associated with the price trend of soybean meal (fig. 4). The wider gap between these two prices in 1973, and especially in the last half of the year, is caused partially by the improvement in the availability of soybean meal and the continuation of the fish meal shortage. Another reason for the wider price difference is the shortage of phosphorus in the United States. Menhaden meal contains about 3 percent phosphorus, but soybean meal only 0.26 percent. Phosphorus is an important ingredient in broiler feed ration and some of the phosphorus needed in the feed ration can be supplied by adding fish meal.

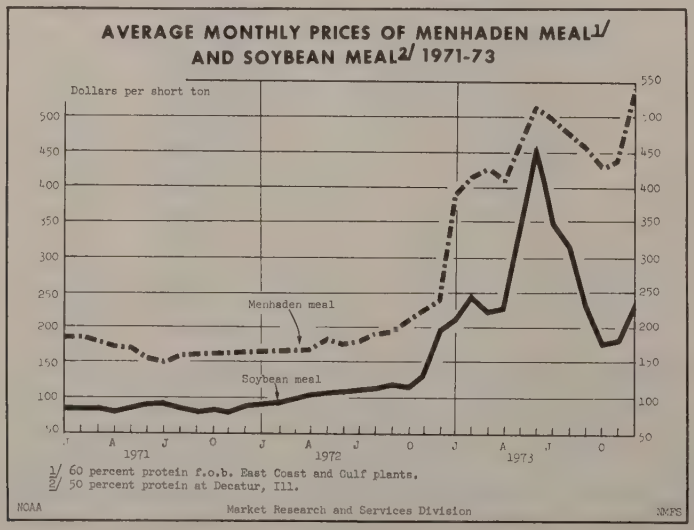

Figure 4

Table 11.--Ratio of Peruvian fish meal price 1/ to soybean meal price 2/, by month, 1971-73

Month	1971	1972	1973
	Price ratio		
January	2.14	1.83	1.65
February	2.17	1.79	1.69
March	2.16	1.67	1.83
April	2.20	1.68	1.77
May	2.00	1.75	1.38
June	1.79	1.68	-
July	1.72	1.62	1.43
August	1.90	1.73	1.54
September	1.99	1.65	3/ 1.96
October	1.95	1.78	3/ 2.42
November	1.99	1.74	3/ 2.43
December	1.79	1.24	3/ 2.41
Average	1.98	1.55	N.A.

1/ F.o.b. East Coast ports, 65 percent protein, as quoted at New York City.
2/ Wholesale at Decatur, Ill., 50 percent protein, bulk.
3/ Ratio of menhaden meal price to soybean meal price.

Table 12.--Average monthly price of Peruvian fish meal 1/ f.o.b. East Coast ports, 1971-73

Month	1971	1972	1973
	Dollars per short ton		
January	184.10	163.30	2/347.25
February	178.90	163.60	2/406.25
March	177.30	164.00	2/411.90
April	177.00	171.50	2/405.00
May	169.40	180.60	2/480.00
June	156.80	176.10	3/
July	154.50	180.90	493.75
August	160.10	192.00	487.50
September	159.00	194.90	3/ -
October	157.80	210.80	3/ -
November	157.50	231.00	3/ -
December	158.40	241.00	3/ -
Average 4/	166.10	179.20	451.70

1/ 65 percent protein, bulk, f.o.b. East Coast ports.
2/ Nominal price.
3/ Supplies exhausted, no quotes.
4/ Average weighted by monthly imports of Peruvian fish meal.

Fish Meal Prices

Because of the shortage of world supplies of fish meal, prices of fish meal was record high in 1973. The annual average price for menhaden meal was $473.58 per ton compared to $185.50 in 1972. The average monthly price reached the peak in December--$537.50 per ton. The quotation refers to a nominal price, because only low quantities of meal were available.

Supplies of Peruvian meal were exhausted most of the second half of the year, and prices were not quoted. Price quotations were $493.75 per ton for July and $487.50 for August.

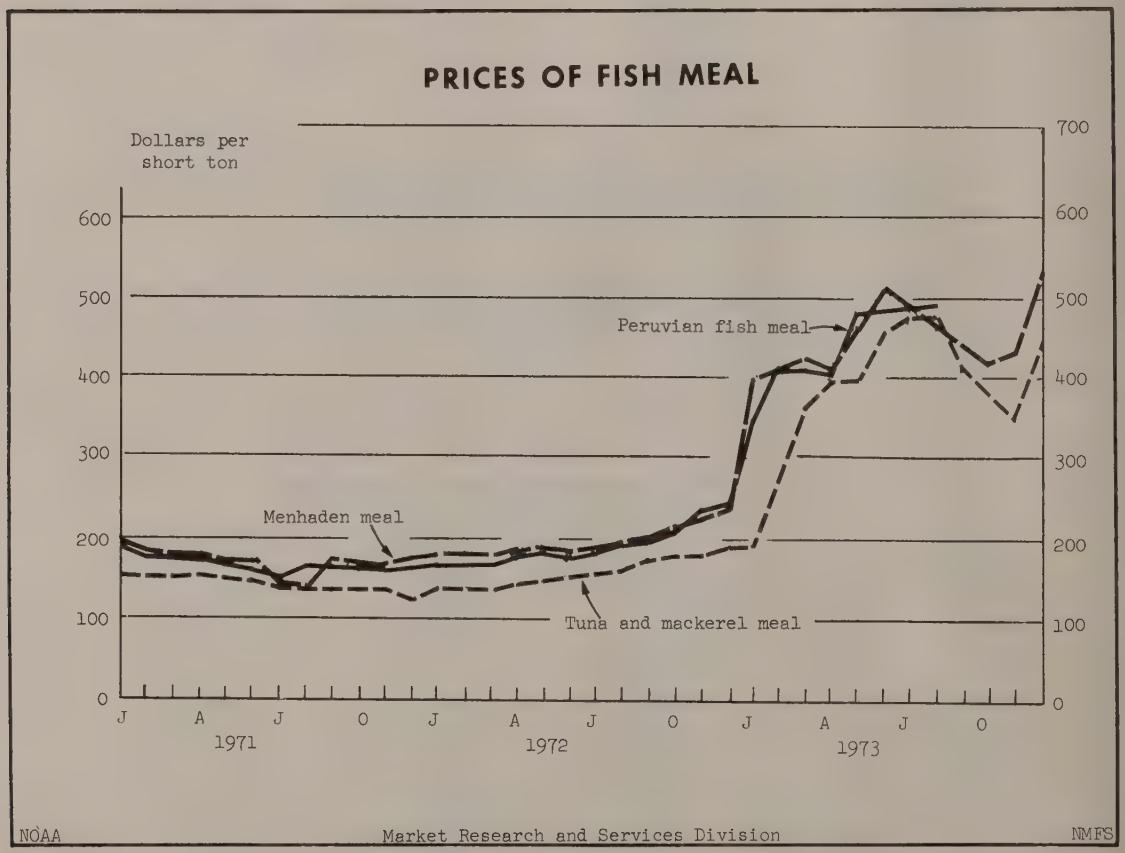

Figure 5

Table 13.--Average monthly price of menhaden meal 1/ f.o.b. East Coast and Gulf points, 1971-73

Month	1971	1972	1973
	Dollars per short ton		
January	2/186.50	164.70	3/389.50
February	2/184.20	165.00	3/410.10
March	180.00	164.70	3/424.10
April	174.10	168.20	3/409.50
May	169.20	181.10	457.50
June	153.60	175.00	508.10
July	150.10	178.50	497.10
August	159.20	189.70	473.90
September	160.30	193.90	456.60
October	160.30	210.20	425.00
November	161.80	227.50	3/436.25
December	162.90	237.50	3/537.50
Average 4/	158.00	185.50	478.58

1/ 60 percent protein, bulk, as quoted by brokers at New York City.
2/ Mainly meal at Gulf points.
3/ Nominal price.
4/ Average weighted by monthly production of menhaden meal.

Table 14.--Average monthly prices of tuna and mackerel meal 1/, at Los Angeles, 1971-73

Month	1971	1972	1973
	Dollars per short ton		
January	150.00	135.00	187.00
February	150.00	137.60	2/
March	150.00	135.00	360.00
April	150.00	138.40	390.00
May	147.60	142.80	393.80
June	144.00	147.80	468.75
July	138.00	154.00	474.00
August	135.00	172.50	480.00
September	135.00	174.00	408.75
October	135.00	176.40	309.00
November	135.00	181.40	345.00
December	127.50	187.00	455.62
Average 3/	141.10	155.90	4/ 396.35

1/ 60 percent protein, bulk, as quoted by brokers at Los Angeles.
2/ No quotes.
3/ Average weighted by monthly production.

OUTLOOK

The greatest uncertainty in the fish meal outlook is the anchovy fishery in Peru. On the basis of information developed by the Peruvian Marine Resources Research Institute (IMARPE), it can be speculated that fishing will improve in 1974, but will be far below normal. IMARPE calculates that 6 to 8 million metric tons of anchovies are not in the sea off Peru. This is an improvement from early 1973, when the anchovy population was estimated at 2 to 6 million metric tons. Nevertheless, the current stock is still only one-third of the normal sea stock of 20 to 25 million metic tons.

Small-scale fishing was carried out in December in the most southern tip of the Peruvian coast with daily catches of about 1,000 metric tons. The Peruvian government announced recently that fishing will begin on the entire coast at the beginning of March. The first goal is to catch 500,000 metric tons of fish and then determine on the basis of catch results how large catch will be allowed for the rest of the season. The maximum catch quota for March-June, 1974, is 1.5 million metric tons, which equals about 300,000 metric tons of fish meal, or slightly less than half of the Peru's 1967-71 production for this period. It is possible, however, that the catch quota will be much smaller than the maximum announced. We do not expect U.S. imports of fish meal during the first half of 1974 to be much more than the 23,200 tons imported during the first 6 months in 1973.

Domestic production of fish meal is likely to be slightly higher in 1974 than in 1973. According to NMFS Atlantic Estuarine Fisheries Center, fishing effort for Atlantic menhaden is expected to remain about the same as in 1973, or increase only slightly. On the Gulf, however, fishing effort will increase 8 to 10 percent. The increased effort could result in a 10-percent increase in menhaden meal production in the United States in 1974 in comparison to 1973. This estimate assumes that adequate fuel will be available to increase the fishing effort. If fishing starts in Peru in March or April, prices of fish meal are likely to weaken later in the spring. In addition, the price decline for soybean meal should tend to pull down prices of fish meal.

Soybean supplies appear abundant; U.S. production in 1973 is estimated at about 43 million metric tons--up about 24 percent from the previous year. Because of high world demand for soybean oil, increased crush of beans is called for, and this tends to depress further the prices of soybean meal.

The fact that fish meal prices here are not declining along with the prices of soybean meal is partially due to the shortage of di-calcium phosphate. The percentage of this nutrient is higher in fish meal than in soybean meal. Because this shortage is mainly caused by interruptions in natural gas supplies, and lack of production capacity of defluorinated phosphoric acid, the problem may not continue after the winter. Thus this factor is likely to have less influence on the price of fish meal and the ratio between the prices of fish meal and soybean meal in 1974.

The unique properties of fish meal, however, may keep a relatively wide gap between the prices of fish meal and soybean meal in the future, especially if supplies of some of the nutrients provided by fish meal are short. An abundance of soybean meal is apparent, and will tend to reduce the price of fish meal also. However, the prices of fish meal likely will settle back to levels considerably above those in recent years.

FISH SOLUBLES

REVIEW

Supplies

Supplies of fish solubles have increased in the United States during recent years. Supplies of solubles in 1973 were 146,600--up 10 percent from the previous year and highest since 1959 (table 15). The increase in U.S. production of fish solubles was the main reason for the increased supplies. U.S. production was 146,300 tons in 1973 compared with 134,400 tons in 1972. All the increase was due to increased production of solubles from fish other than menhaden. Production of menhaden solubles was 102,000 tons, slightly down from the previous year. About 309 tons of fish solubles were imported during 1973 compared with 85 tons in 1972.

Demand

Because of the shortage of fish meal, demand for fish solubles was generally good during the year. Owing to high demand, supplies have been occasionally exhausted, and prices high. Prices of menhaden solubles averaged $134.88 per ton in 1973, more than three times as high as 1972.

The average price in December was $150.00 per ton compared with $72.50 a year before (table 16 and fig. 6). On the basis of unit of protein price, solubles were a relatively low priced source of protein in 1973. The annual average price of menhaden solubles was $4.35 per unit of protein, and the price of menhaden meal was $7.98 per unit of protein.

OUTLOOK

Prices of fish solubles have increased faster than the prices for fish meal, thus indicating continuous high demand. Because of the shortage of fish meal supplies, demand for fish solubles will continue strong during the coming months. Domestic production is expected to be above 1973. Some imports will supplement domestic production especially during the early part of 1974.

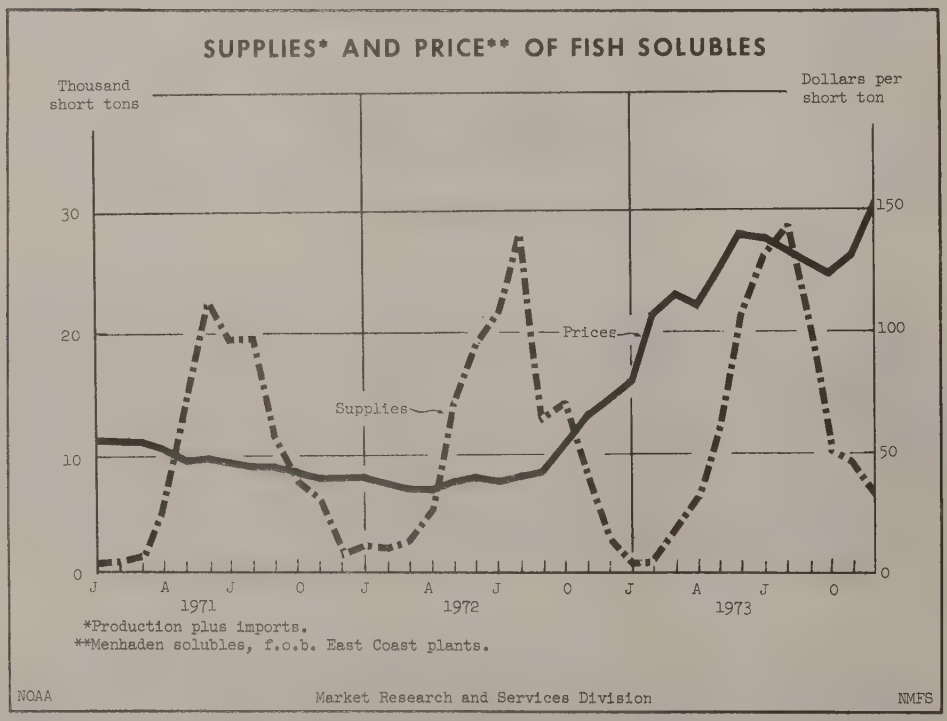

Figure 6

Table 15.--Total fish solubles available in the United States: production plus imports, by month, 1971-73

Month	1971	1972	1973
	Thousand short tons		
January	1.0	2.4	1.1
February	1.2	2.1	1.1
March	1.5	2.5	3.8
April	5.1	5.3	6.0
May	13.0	14.4	12.1
June	22.6	19.2	21.1
July	19.4	21.7	26.2
August	19.7	28.1	28.7
September	11.4	12.9	20.2
October	8.0	14.4	10.1
November	6.4	8.3	9.4
December	1.7	2.9	6.7
Total 1/	111.2	134.4	146.6

1/ Figures may not add to total because of rounding.

Data for 1973 are subject to revision.

Table 16.--Average monthly price of menhaden solubles 1/, f.o.b. East Coast plants, 1971-73

Month	1971	1972	2/1973
	Dollars per short ton		
January	51.25	2/40.40	80.50
February	51.25	38.05	105.50
March	51.25	35.90	115.00
April	50.60	35.90	111.00
May	48.90	38.90	126.25
June	49.00	40.10	142.50
July	48.10	39.75	139.00
August	47.15	40.60	133.75
September	45.05	42.80	128.50
October	43.10	52.75	3/125.00
November	42.70	66.90	3/131.25
December	42.50	72.50	3/150.00
Average 4/	47.30	43.45	134.88

1/ In tank cars; prices quoted by brokers at New York City.
2/ East and Gulf Coasts.
3/ Asking price.
4/ Weighted average.

FISH OIL

REVIEW

Fish Oil Production

Production of fish oil in the United States in 1973 was up nearly 20 percent from 1972. The domestic industry produced about 225.2 million pounds of fish oil during 1973 compared with 188.4 million pounds in 1972. Most of this increase came from menhaden. Production of menhaden oil was 201.9 million pounds in 1973 compared with 167.0 million in 1972. Production of anchovy oil was 8.3 million pounds in 1973 and 4.4 million in 1972; tuna and mackerel oil was 8.5 million in 1973 and 5.0 million pounds in 1972.

Table 17.--U.S. production of fish oil[1/] by month, 1971-73

Month	1971	1972	1973
	Million pounds		
January	1.5	1.4	0.4
February	0.6	0.9	.4
March	.7	.7	.7
April	11.6	4.8	4.6
May	28.4	30.8	18.5
June	57.3	28.0	37.0
July	53.2	32.6	58.4
August	55.7	45.5	51.1
September	29.4	23.2	30.8
October	17.3	15.2	15.7
November	8.0	4.3	4.0
December	1.3	1.2	3.6
Total[2/]	265.0	188.4	225.2

1/ Excluding whale oil.
2/ Figures may not add to total because of rounding.
Data for 1973 are subject to revision.

Demand

U.S. Use of Fish Oil

U.S. fish oil use in 1973 was down from 1972 partially because of high demand for exports. About 25 million pounds were used in 1973 and 30 million pounds in 1972. Fish oil is used in margarine and shortening in foreign countries; its use in the United States is limited to nonfood purposes.

Exports

U.S. exports of fish oil in 1973 was highest in 10 years. Exports were 248.8 million pounds, compared with 193.2 million pounds in 1972, and only about 13 million pounds less than the record-high 1963 exports. The

Table 18.--Industrial use of fish oil in the United States, by month, 1971-73 1/

Month	1971	1972	1973 2/
	Million pounds		
January	2.2	1.9	2.5
February	2.1	2.5	2.0
March	2.0	2.1	1.9
April	2.0	2.0	1.8
May	1.9	2.3	2.1
June	2.8	2.2	2.1
July	2.7	3.5	2.4
August	1.7	3.7	3.1
September	3.0	2.6	1.8
October	1.4	2.6	1.6
November	1.9	2.4	2.0
December	2.9	2.2	2.0
Total 3/	26.5	30.0	25.3

1/ Includes marine mammal oil other than sperm oil and some hydrogenated fat (vegetable and animal) and other fats and oils in process.
2/ Preliminary.
3/ Figures may not add to total because of rounding.

shortage of Peruvian fish oil in the world market was a major reason for the increased U.S. exports of fish oil.

About 59 percent of fish oil exports went to the Netherlands compared to 43 percent in 1972. The United Kingdom received about 17 percent and Sweden about 15 percent of the United States exports of fish oil.

PRICES

Menhaden Oil Price

Prices of menhaden oil, as quoted by brokers in New York City, increased from an average of 8.75 cents per pound f.o.b. East Coast plants in January to an average of 11.85 cents per pound in June (table 20). Asking prices averaged 11.5 cents per pound in August and in September. During the rest of the year supplies of menhaden oil in the U.S. markets were exhausted and there were no price quotations. Export markets commanded higher prices and were responsible for the depletion of U.S. supplies. Crude fish oil from different origins averaged about 17 cents per pound c.i.f. Northwest Europe in November.

Table 19.--U.S. exports of fish oil 1/, by month, 1971-73

Month	1971	1972	1973 2/
	Million pounds		
January	32.2	14.0	6.5
February	4.9	10.3	11.0
March	0.3	0.7	11.1
April	6.1	.9	0.5
May	4.6	5.3	1.0
June	10.9	11.0	25.2
July	34.7	38.3	6.4
August	43.1	2.0	72.6
September	43.7	32.4	26.2
October	4.4	38.0	59.2
November	21.6	6.4	17.5
December	23.4	33.8	11.7
Total 3/	229.9	193.2	248.8

1/ Excluding whale oil.
2/ Preliminary.
3/ Figures may not add to total because of rounding.

Table 20.--Average monthly price of menhaden oil 1/ f.o.b. East Coast plants, 1971-73

Month	1971	1972	1973
	Cents per pound		
January	10.40	7.35	8.75
February	10.30	6.85	2/ 9.60
March	10.20	6.50	2/ 10.25
April	9.65	6.40	10.85
May	8.95	6.95	11.65
June	8.05	6.80	3/ 11.85
July	8.60	6.90	11.70
August	9.25	7.30	3/ 11.50
September	9.15	7.80	3/ 11.50
October	8.85	8.70	4/ -
November	8.90	8.80	4/ -
December	8.50	8.90	4/ -
Average 5/	8.80	7.25	11.64

1/ Crude oil in tank cars; prices quoted by brokers at New York City.
2/ Nominal price.
3/ Asking price.
4/ Supplies exhausted, no quotes.
5/ Weighted average.

Table 21.--Average monthly price of tuna and mackerel oil 1/ at Los Angeles 1972-73

Month	1972	1973
	Cents per pound	
January	5.25	5.50
February	5.25	5.10
March	5.25	5.50
April	5.25	5.75
May	5.25	6.28
June	5.25	6.72
July	5.25	6.73
August	4.88	6.88
September	4.78	6.97
October	4.80	6.35
November	5.00	6.50
December	5.50	6.91
Average 2/	5.09	6.46

1/ Crude oil, f.o.b. plant; prices quoted by brokers at Los Angeles.
2/ Weighted average.

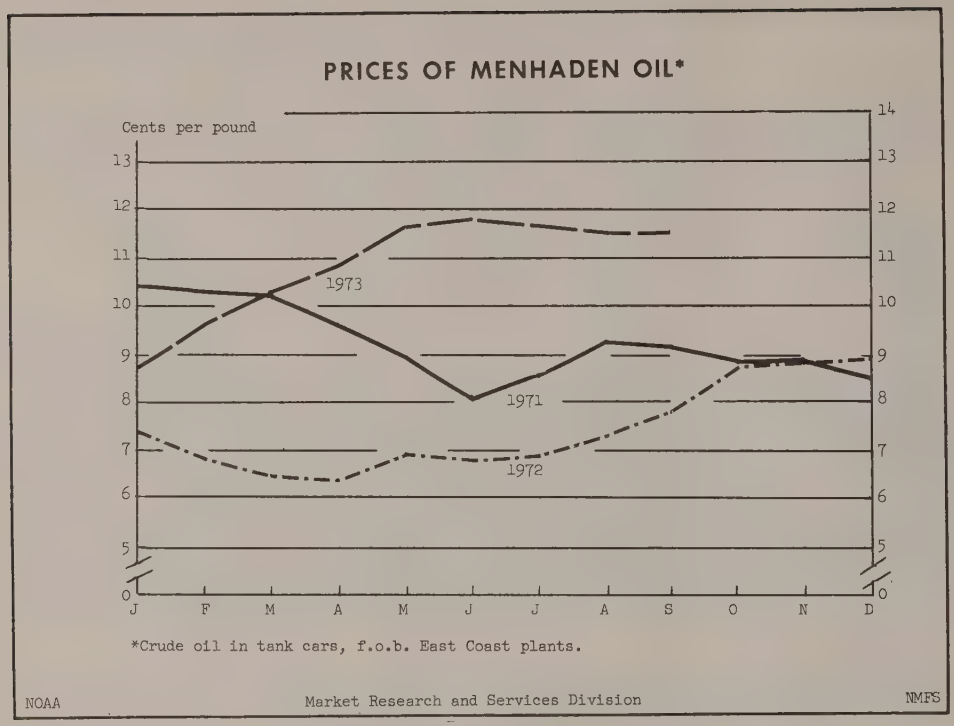

Figure 7

OUTLOOK

How well the production of fish oil recovers will be an important price-influencing factor. Although Perú is expected to begin commercial fishing in March, production reached before the anchovy crisis will not be obtained in the near future. Current information concerning the anchovy population suggests that Peruvian production of fish oil may remain below 100,000 metric tons in 1974 compared with the average annual production of about 300,000 metric tons in 1967-71. U.S. supplies of soybean oil are expected to increase during 1974, but the domestic demand is also rising. Exports of soybean oil are not expected to increase. Large supplies of Malaysian palm oil and a large crop of peanuts in India will compete with soybean oil and fish oil in major export markets. Possibilities of exports of sunflower seed and oil from the Soviet Union to European markets tend to make export markets for fish oil slightly bearish in long run.

Domestic production of fish oil is expected to be higher than a year ago. Fish oil for domestic use may be short if domestic prices continue to be controlled and fish oil is exported to higher priced European markets.

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